



6th annual workshop of the EU-RL Rome, 4th November, 2011



French EHEC outbreaks in 2011



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Surveillance of STEC infections in France



Ministère de la santé et des sports
Ministère de l'agriculture et de la pêche
Ministère de l'économie, de l'industrie et de l'emploi

CIRCULAIRE INTERMINISTERIELLE N°
DGS/EA3/DUS/DGAL/MUS/DGCCRF/C2/2009/248 du 03 août 2009

Regulation specifying how HUS cases should be monitored and which control measures should be taken

- **Describes the system of surveillance of HUS cases (coordination by the INVS).**

(children under 15 years old/ hospitals' network/ diagnosis and confirmation by the French NRCenter)

- **Specifies the role of each French Ministry (importance of the network and data's centralization)**

(alert/case definition/ epidemiological investigations/trace back study/ human and food microbiological analyses)



Outbreak of HUS cases associated with minced beef in France, June 2011



14 June 2011, 5 cases of HUS were reported to the Public Health authorities in the Lille region in North of France.

- **Alert!**
- **Epidemiological investigations** were initiated by local Public Health authorities to describe the extent of outbreak and identify the vehicles of transmission in order to guide control measures and prevent further cases
- **Patients' stools** are sent to the French NRCenter for confirmation



Outbreak of HUS cases associated with minced beef in France, June 2011



15 June 2011, preliminary investigations indicated that HUS cases are associated with consumption of frozen minced beef.

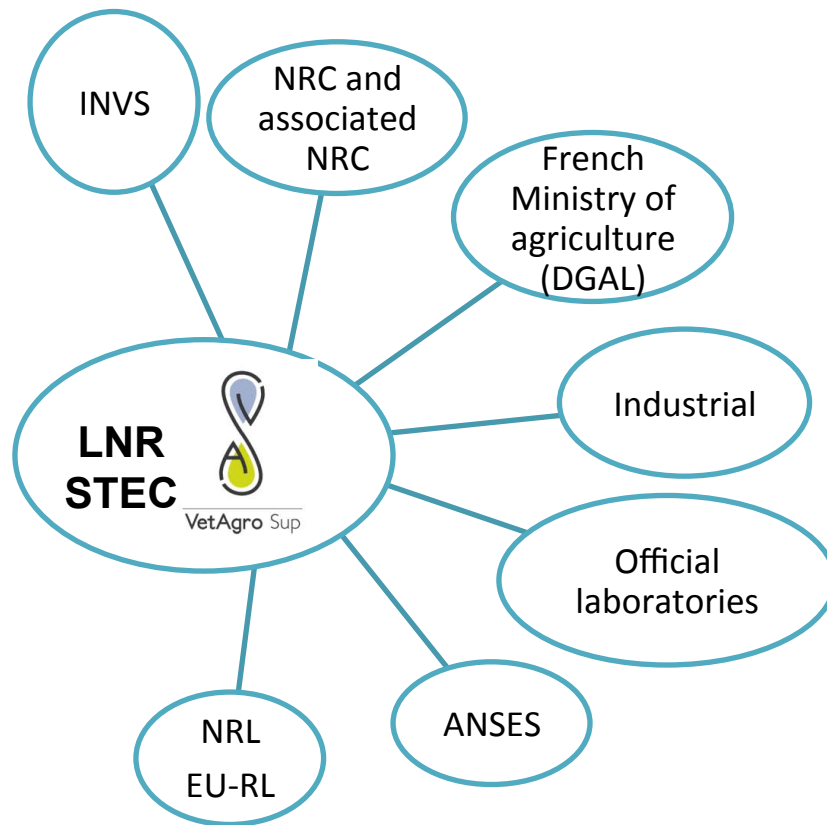
(brand STEAK COUNTRY use-by 11 May 2012 sold in LIDL supermarkets of 3 departments 59, 62 and 60)

(epidemiological and trace back investigations INVS/DGAL).

- 15 June (D+1), **immediate withdrawal and call back** of the batch of the suspected frozen meat + 2 supplementary batches (use by 10 and 12 May 2012) (without any microbiological results)
- Food samples were sent to the French NRL for confirmation.

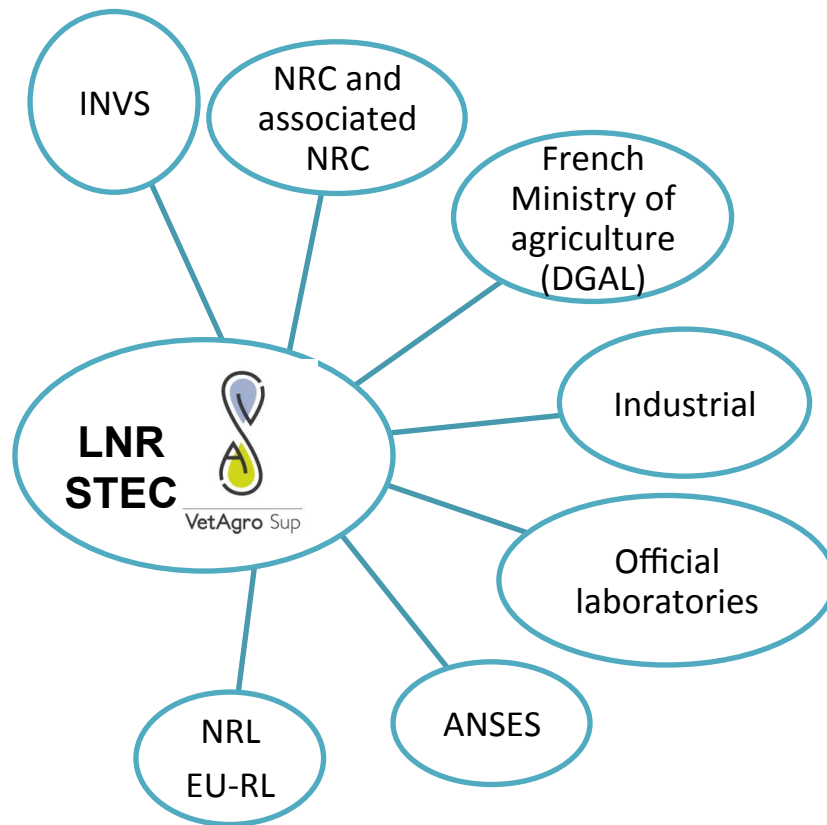


Outbreak of HUS cases associated with minced beef in France, June 2011





Outbreak of HUS cases associated with minced beef in France, June 2011



17 June: samples received at the NRL

Human microbiological investigations: presence of stx2 genes and O157 markers in total DNA extracted from patients faeces

2 methods used in parallel in meat:

NF EN ISO 16654

ISO TS 13136

⇒ Isolation of O157:[H7] strains **and** eae+ stx2+ O177:[H25] STEC which could explain HUS cases
! : atypical SF O157 + non-top 5 STEC

Trace back investigations and control plan of the industrial

Official lab (screening) and NRL (confirmation)

⇒ More than 200 STEC isolated



Outbreak of HUS cases associated with minced beef in France, June 2011



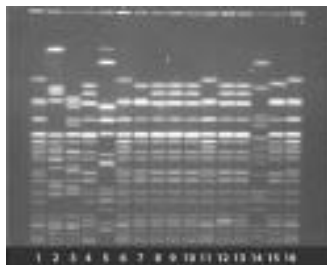
- Trace- back investigations

2nd July 2011, contamination of other meat products (same raw materials) / withdrawal and call back of all of these products.



- Epidemiological investigations

12 July 2011, 19 HUS cases were reported (18 children/1 adult). Among these 19 cases, 11 have a direct or an indirect link with the consumption of contaminated meat.



- Microbiological investigations

Sept/Oct 2011: Comparison of strains isolated from patients and meat (more than 250 souches): PFGE, MLVA.

⇒ Legal procedure



Outbreak of HUS cases associated with fenugreek sprouts in France, June 2011



- **22 June 2011**, 2 cases of HUS and 6 cases bloody diarrhoea in Bordeaux region
-> epidemiological investigations to identify the source and take appropriate control measures.
- The epidemiological and microbiological investigations have now been completed.
15 cases were identify:
 - 9 HUS
 - 4 bloody diarrhoea ,
 - 2 simple diarrhoea.11 patients hospitalised, none of whom died.

All of the patients lived in Bègles or nearby.

Outbreak of HUS cases associated with fenugreek sprouts in France, June 2011



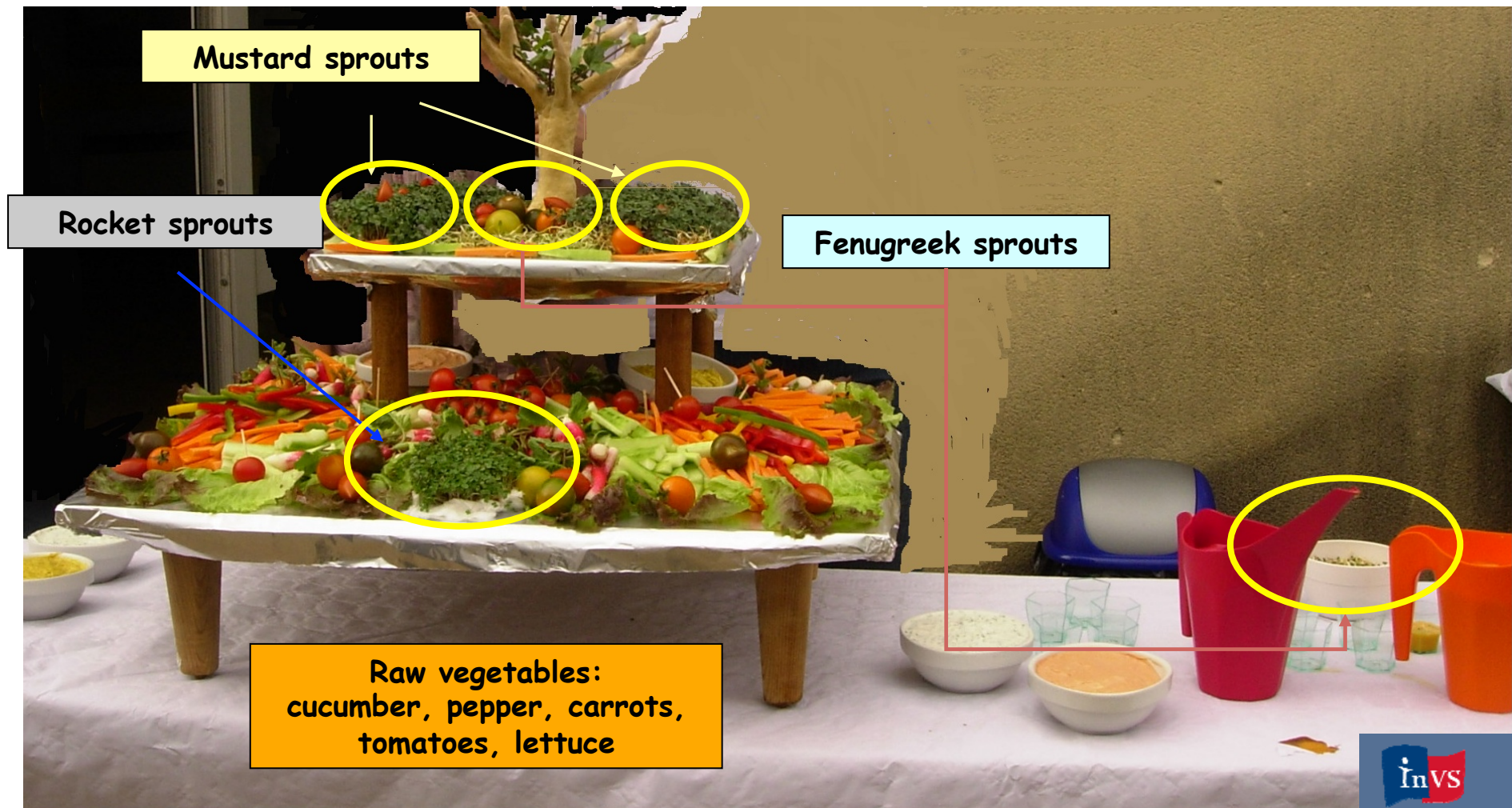
- **13 patients** had consumed sprouts served as part of the buffet for the open day that took place on 8 June 2011 in a recreation centre for young children (CLPE) in Bègles. 2 cases involving non-consumers of sprouts were secondary cases caused by human-to-human transmission of people in contact with a patient who had consumed sprouts.
- All of the cases identified were either directly or indirectly related to this center for children.
- 12 cases of infection with **EHEC O104:H4** were confirmed.
- Cohort study undertaken of 169 participants of the open day has shown a **strong and significant relationship between consumption of sprouts during the buffet and occurrence of the disease.**



Outbreak of HUS cases associated with fenugreek sprouts in France, June 2011

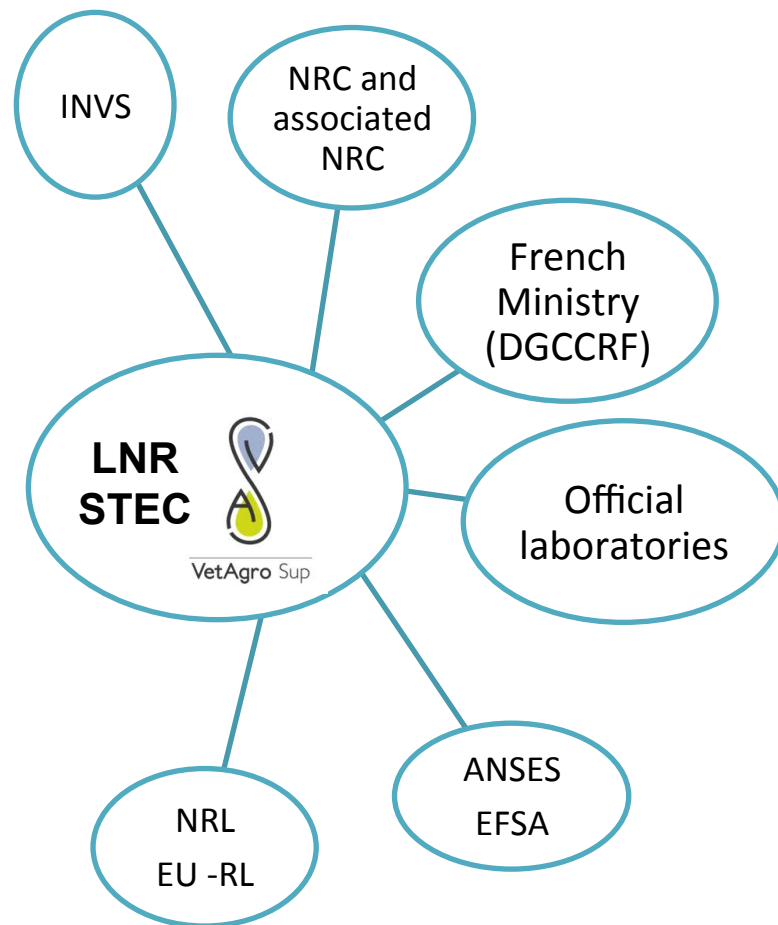


Photo of raw vegetable buffet





Outbreak of HUS cases associated with fenugreek sprouts in France, June 2011



Samples from CPLE received on the 25th of June

Human microbiological investigations: isolation of an EHEC O104:H4 strain in human feces (similar to the German clone)

Methods used :

ISO TS 13136 and adapted protocol from the EU-RL
+ in parallel when possible: Protocol from the German NRL (germination and specific enrichment media and duration)

A total of 29 seeds samples, 4L of cold soup and 3L of water were analyzed

Seeds+ packets washing + packets
+ in parallel when possible: Sprouts (after germination) and germinating supports (compresses)

⇒No positive results!

(neither *stx*, *wzxO104*, *aggR* signals nor strain isolated)

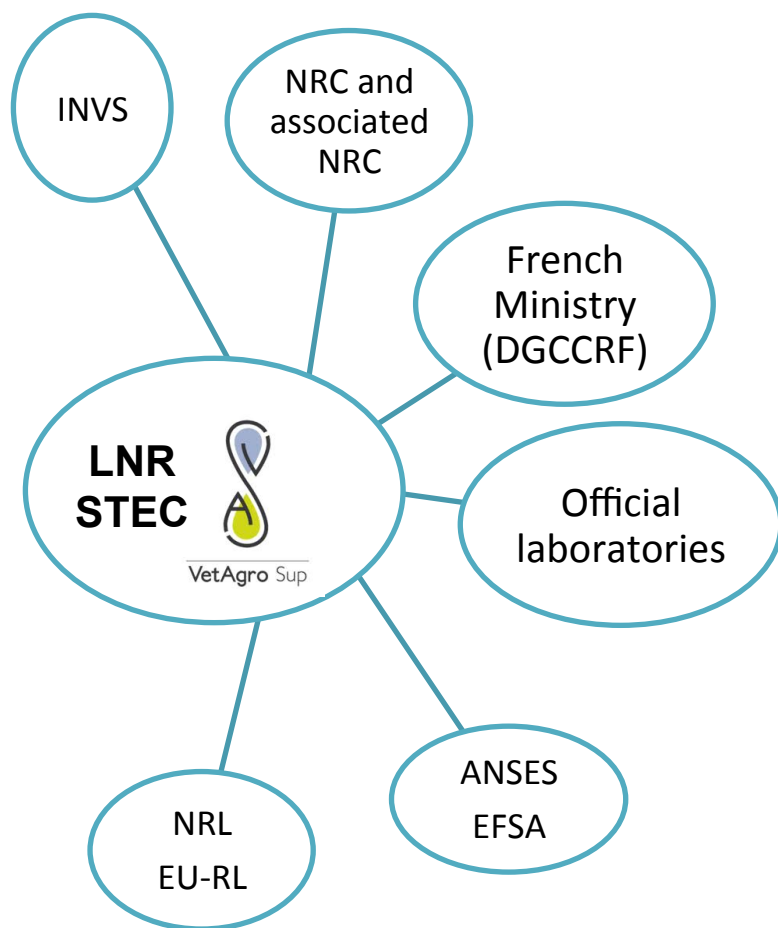
Information, reference method and materials for official labs



French official laboratories



Outbreak of HUS cases associated with fenugreek sprouts in France, June 2011



EFSA report issued on 05 July 2011: Tracing seeds, in particular fenugreek seeds, in relation to the Shiga toxin-producing *E. coli* (STEC) O104:H4 2011 Outbreaks in Germany and France.

Association between human cases and consumption of fenugreek seeds imported from Egypt

06 July. Decision 2011/402/UE

on emergency measures applicable to fenugreek seeds and certain seeds and beans imported from Egypt



(*Trigonella foenum-graecum*)⁶⁸



Outbreak of HUS cases associated with fenugreek sprouts in France, June 2011



Control measures in France

- Release for free circulation in France of seeds and certain beans from Egypt was prohibited until 31 October 2011.

- Withdrawal/call back/destruction: all lots of fenugreek seeds imported from Egypt during the period 2009-2011.

- Surveillance measures all along the food chain (French ministry and professionals) from June 2011

TN 32 DJ Control plan of raw sprouts et seeds

TN 32 DK Surveillance plan of raw vegetables

NS DGAL/SDQP/N2011-8154 du 27/06/11 Increasing of inspections of seeds and sprouts producers.

Negative results do not necessarily prove the absence of STEC in a lot

! Non homogenous, low level of contamination of the lots?





The French NRL for STEC



A beautiful team composed by 15 persons!



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Thanks for your attention!



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